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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/621,823
Filing Date: July 17, 2003
Appellant(s): DEN BOER ET AL.

Eugene R. Montalvo
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 5/25/2007 appealing from the Office action mailed 12/11/2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

1,260,690	LIADY	03-1918
2,497,631	ROTHSCHILD	02-1950
2,719,207	MOYER	09-1955
2,998,646	HITZ	09-1961
4,736,084	MOE	04-1988
5,721,413	MOE	02-1998

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 2, 4, 6, and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moe (4,736,084) taken with Liady (1,260,690). Figure 1 and the discussion at columns 2-3 of the patent to Moe (4,736,084) disclose a method of joining tubulars wherein a reducing gas is flushed around the heated tubular ends (see specifically column 3, lines 35-40) and the ends of the tubulars are forged welded. The claims differ from Moe (4,736,084) in calling for tubular ends with a circumferentially non-planar shape, and more specifically with sinusoidal or teethed

shapes (in claims 2 and 14). These differences do not patentably distinguish over the prior art. At the time applicant's invention was made, it would have been obvious to have provided the tubulars in Moe (4,736,084) with the end shapes claimed, the reason being the teachings of Liady (1,260,690) that such are known to be useful for welding tubulars in order to produce a stronger weld (see figures 1-4 in Liady (1,260,690)). In regard to claims 4, 10, and 11, these claims do not include any further method steps. Insofar as claim 4 imposes a limitation that the heavy duty tubular being welded is part of a drill string, the patent to Liady (1,260,690) teaches that its approach is applicable to welding a drill stem (see page 1, line 100 in the patent) and it thus teaches this limitation. Otherwise, claims 4, 10, and 11 are descriptive of post weld-method scenarios that do not impose any limitation on the claimed subject matter that would distinguish over the combination of prior art references.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moe (4,736,084) taken with Liady (1,260,690) as applied to claims 1, 2, 4, and 6 above, and further in view of Moyer (2,719,207) and Rothschild (2,497,631). The only aspect of the claim to which the rejection above does not apply is the provision for a particular gas mixture. This difference does not patentably distinguish over the prior art. The patent to Rothschild (2,497,631) discloses welding shield gas compositions that fall within the constituent ranges claimed (see column 1, lines 39-55 of Rothschild (2,497,631)). At the time applicant's invention was made, it would have been obvious to have used the specific gas disclosed by Rothschild (2,497,631) in the welding method of Moe (4,736,084), the reason being the teachings of Moyer (2,719,207) that it

is advantageous to conduct forge welding with a gas comprised of an inert gas with a small amount of a reducing gas such as hydrogen (see column 3, lines 10-25 in Moyer (2,719,207)).

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moe (4,736,084) taken with Liady (1,260,690) as applied to claims 1, 2, 4, and 6 above, and further in view of Moe (5,721,413). The only aspect of the claim to which the rejection above does not apply is the provision for the ferrite bars around or within the circumferences of the tubular ends. This difference does not patentably distinguish over the prior art. At the time applicant's invention was made, it would have been obvious to have provided the arrangement of Moe (4,736,084) with the ferrite bars as claimed, the reason being the teachings of Moe (5,721,413) that such is useful for welding tubulars (see elements 13 in figure 5 and the discussion at column 2, lines 55-65 in Moe (5,721,413)).

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moe (4,736,084) taken with Liady (1,260,690) as applied to claims 1, 2, 4, and 6 above, and further in view of Hitz (2,998,646). The only aspect of the claim to which the rejection above does not apply is the provision for the overlapping tubular ends. This difference does not patentably distinguish over the prior art. At the time applicant's invention was made, it would have been obvious to have shaped the tubular ends in Moe (4,736,084) to be overlapping, the reason being the teachings of Hitz (2,998,646) that this is useful when welding tubular ends together (see elements 3 and 4 in figures 1-3 of Hitz (2,998,646)).

(10) Response to Argument

Appellant's arguments in the Brief filed on 5/25/2007 have been given careful consideration, but are not persuasive that the claims are patentable. Appellant argues that the teachings of Liady (1,260,690) are not compatible with the teachings of Moe (4,736,084) because Liady (1,260,690) requires interlocking tubular ends before welding (thus implying physical contact of the tubular ends before welding) while the patent to Moe (4,736,084) teaches a gap between the tubular ends before welding. The interdigitated tongues taught by Liady (1,260,690) are for the purpose of increasing the strength of a completed weld. A drill pipe with these tongues in the vicinity of a threaded pipe fitting will better withstand the in-use strains placed on the drill pipe (e.g., strains due to twisting of the pipe or the application of torque at the fitting). In applying the teachings of Liady (1,260,690) to the welding method of Moe (4,736,084) , the artisan of ordinary skill will obviously realize (through the exercise of common sense) that the tongues on the respective workpieces must be machined to accommodate the gap required by the welding method of Moe (4,736,084) . The general teaching of Liady (1,260,690) is that the interdigitated tongues provide for a stronger weld. The details of how the tongues on opposing tubulars are arrayed with respect to each other during welding would clearly be determined by the specific type of welding contemplated. Appellant argues that claim 4 imposes limitations not taught or suggested by the prior art. Examiner does not agree. Claim 1 is directed to a method of joining heavy duty tubulars. Claim 4 depends form claim 1 and specifies that the tubulars are part of a drilling string. The patent to Liady (1,260,690) teaches that its welding method is applicable to a drill stem (page 1, line 100 in the patent), so this subject matter

is taught by the prior art. The descriptive language in claim 4 suggesting that the drill string carries a drill bit while drilling a hole and remains in the borehole after completion of the drilling process does not set forth any specific method steps and clearly does not set forth any steps in a method of joining heavy duty tubulars. Applicant is claiming a method of joining, not a method of drilling holes.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Clifford C. Shaw/

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